
Overview

This standard is about the principles of dehydration processes in food technology.

This standard is for you if you require a broad understanding of dehydration in food technology. You need to understand the effects of dehydration on foods and how 'water activity' is measured. You need to know a range of drying processes and the food materials best suited to the process.

Performance criteria

You must be able to:

See

IMPPO208S Control heat treatment in food manufacture

Knowledge and understanding

You need to know and understand:

- 1 what physical effects dehydration has in foods; water loss, weight and bulk reduction, the concentration of solutes in specific areas, case hardening
- 2 what the effect of dehydration is on microbial growth and reproduction
- 3 what the term Water Activity (a_w) in food means, and which types of organisms grow at particular a_w ranges
- 4 how osmotic effects can reduce a_w in foods like jams and salted foods
- 5 why water which is chemically bound cannot be easily removed from foods
- 6 what the nutritional and quality effects of dehydration are including vitamin degradation, acceleration of oxidative rancidity, changes in shape, colour, texture
- 7 why blanching may be necessary in certain products prior to dehydration; enzymic reactions, non-enzymic reactions (Maillard)
- 8 how the sun-drying process is carried out, its characteristics and equipment used
- 9 how warm-air driers dehydrate foods; kiln driers, tunnel driers, fluidised bed driers, their characteristics and equipment used
- 10 how roller or drum driers and spray driers dehydrate liquid foods, their characteristics and equipment used
- 11 how freeze drying and accelerated freeze drying processes work, their characteristics and equipment used
- 12 the economics and food advantages of dehydration methods in the market success of convenience foods

Principles of dehydration processes in food technology

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